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Health Bulletin

No. 77. HARRISBURG, PA. JANUARY, 1916.

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PUBLISHED MONTHLY BY
THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D.,
COMMISSIONER.

THE PENNSYLVANIA DEPARTMENT OF HEALTH EXHIBIT AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION.

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THE PENNSYLVANIA DEPARTMENT OF HEALTH EXHIBIT AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION.

The laws under which the Pennsylvania Department of Health was established were enacted in 1905. These laws consisted of an act creating a Department of Health, an act to preserve the purity of the waters of the Commonwealth, and an act to provide for the registration of vital statistics.

By the statute creating the Department of Health the General Assembly established the highest type of co-operative centralized health authority, to be vested by appointment of the Governor of the Commonwealth in a Commissioner of Health and an Advisory Board who should be in direct control of the Department in all its manifold activities, excepting in the regulation of the disposal of the sewage which was placed under the supervision of the Governor, the Attorney General, and the Commissioner of Health acting together. The Commissioner of Health has supervisory control in health affairs over the entire population of the State and is specifically charged with the direct administration of public health matters in the rural districts of the State, representing a population of more than two and a half million individuals.

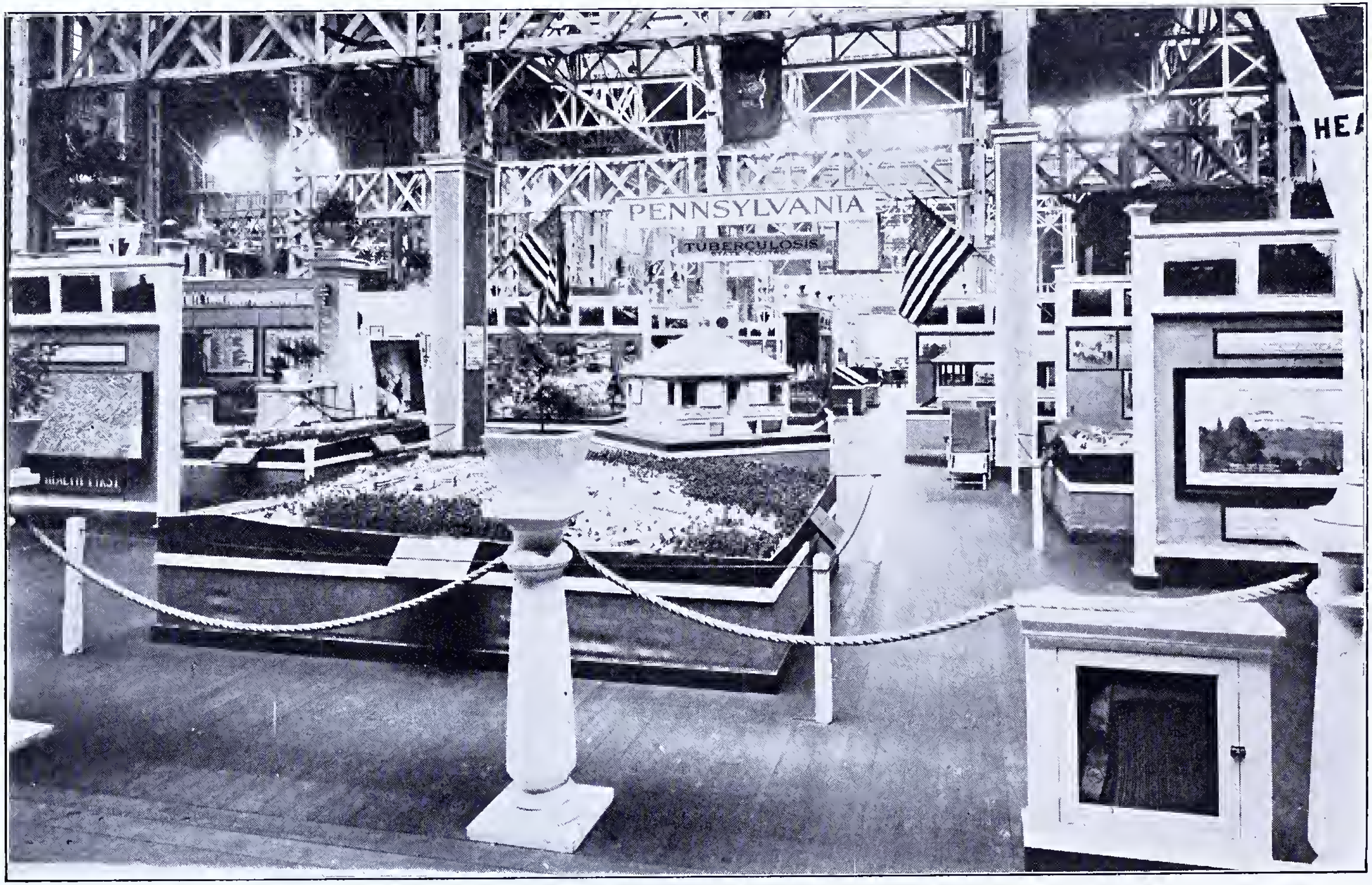
The legislation of 1905 creating the Department, vesting authority in the Commissioner of Health, to preserve the purity of the waters of the State, and providing for the registration of vital statistics, with facilities for carrying out such legislation, was further supplemented in 1907 by acts relating to the management and control of tuberculosis; by a State Sanitary Code in 1909; and in 1911 by the inauguration of a system of medical inspection of children of school age in the fourth class (rural) districts of the State.

In addition to the duties imposed upon him by these statutes, the Commissioner of Health is, by virtue of his office, a member of the State Quarantine Board, having control over maritime shipping; of the State Bureau of Medical Education and Licensure, having control of medical education and the licensure of Practitioners of Medicine, Surgery, and Midwifery; of the Dental Council having to do with the examination and licensure of Practitioners of Dentistry; and of the State Water Supply Commission, having to do with the equitable distribution of the waters of the State.

Preparations for an exhibit by the Department of Health in the Panama-Pacific International Exposition at San Francisco could not be undertaken until the autumn of 1914 was well advanced. On the twentieth of October the Pennsylvania Commission voted to set aside a sum of money, not to exceed $20,000, for this purpose. This amount was small as compared with the appropriations of some other States conspicuous in the promotion of the public health, being in fact less than a quarter of that of an adjoining State, and the time for preparation was short. By strenuous effort the development of the various parts of the exhibit was begun and carried on. Numerous models, diagrams, and photographs had to be made, and many charts were needed to illustrate such phases of departmental activity as seemed suited to a public display. For this purpose the necessary workrooms were established at the corner of Nineteenth and Arch Streets, in Philadelphia. Early in April it became possible to send forward our well-boxed material, and on the twenty-first the shipment reached San Francisco. The exhibit was then installed as rapidly as possible, some two months after the nominal opening of the exposition, but quite as soon as that of many of our neighbors.

The exhibit of the Department of Health at the Panama-Pacific Exposition was housed in the magnificent Palace of Education. No building at the Exposition contained more in the way of instruction and inspiration to men and women who are interested in the real welfare of the human race and the betterment of mankind, than this superb creation of the builder's art. No part of this wonderful building lent its appeal more strongly to these same thousands of men and women—the people who think—than the excellently complete exhibit of the Department of Health of the Commonwealth of Pennsylvania.

Those who saw it invariably exclaimed "Pennsylvania is showing the way in sanitation, in school hygiene, in welfare work, to all the states, and to the nations." "How do you do it?" "How do you



A General View of a Part of the Exhibit as Set up at San Francisco.

get the money to do all this grand work?" They stared with wide-open eyes when they learned that all this has been accomplished practically in a decade, that all is due to the tireless energy, the tactful persuasion, and the wise forethought which the Governors and State legislatures have shown, sometimes in the face of no mean opposition, in advocating the view that Pennsylvania could make no better investment of its money than to invest it in those things which make for the health and welfare of the citizens of the State. For some time past Pennsylvania has been "The Keystone of Vital Statistics." It is today the "Keystone of Sanitary Work" in the United States.

One could not enter the Palace of Education without being drawn instinctively to the immense booth on all sides of which hung the spotless white pennants with the large, attractive, green colored keystone; while from the centre beam and at each end were draped the Stars and Stripes, side by side, with the beautiful blue silk flag of the Commonwealth of William Penn.

Almost the first thing that arrested the eye of the visitor was the large white banner on which was inscribed the striking truth that "the varied industries on which we depend for our comfort, the wealth which enables us to enjoy them, and the arts of civilization which adorn and diversify our lives are but the fruitage of the tree whose root is health."

The exhibit vividly and graphically portrayed many details of the activities of the Department, and may be roughly divided into three separate parts:—School Hygiene, Typhoid Fever and Sanitary Engineering, and the Tuberculosis work.

SCHOOL HYGIENE.

Here beautiful pictures showed the actual inspection of rural school children; of these Pennsylvania inspects approximately four hundred thousand a year. It is the only state in the Union which has undertaken the medical and sanitary inspection of rural schools, on such a vast scale, under state supervision.

The medical inspection concerns itself with the general physical condition of the child and endeavors to determine whether it has defects of vision or hearing or any other common form of abnormality such as is known to hamper the progress of children in school. The sanitary inspection is made of the buildings as to lighting, heating, ventilating, sanitary conveniences, and water supply.

On entering the section for school hygiene, one saw a relief map of the State, showing the location of the rural schools. Then in large photographic transparencies, lighted by electric lights placed behind them—all the transparencies were so lighted—was seen the arrival of the Medical Inspector at the rural school; the testing of vision by the inspector and the examination of cervical glands. Photographs, sixteen inches by twenty, were also displayed, showing the inspector and teacher taking a record of the temperature and pulse rate of the pupil; testing his vision, and examining the eyes for evidence of conjunctivitis, trachoma, etc., with a large legend in white and black wherein appeared the startling fact that nearly seventy-three per cent. of all these school children have some form of physical defect which influences their mental and physical progress.

Three transparencies then came in view as one moved on, showing the free school dental clinic, an old rectangular Pennsylvania schoolhouse, and an old octagonal form of schoolhouse.

Four large photographs adorned the sides of the screen, showing how the blackboard looks to moderately near-sighted children, to average near-sighted children, to extremely near-sighted children, and to children with normal vision. The legend above these photographs brought the pertinent fact to the mind of the onlooker that twenty-four in every hundred of all school children have defects of vision which retard their mental progress.

Three large transparencies showed the old octagonal schoolhouse restored; a school garden, graphically picturing an old stone schoolhouse and grounds converted into an agricultural school centre; and a class receiving manual training in the school.

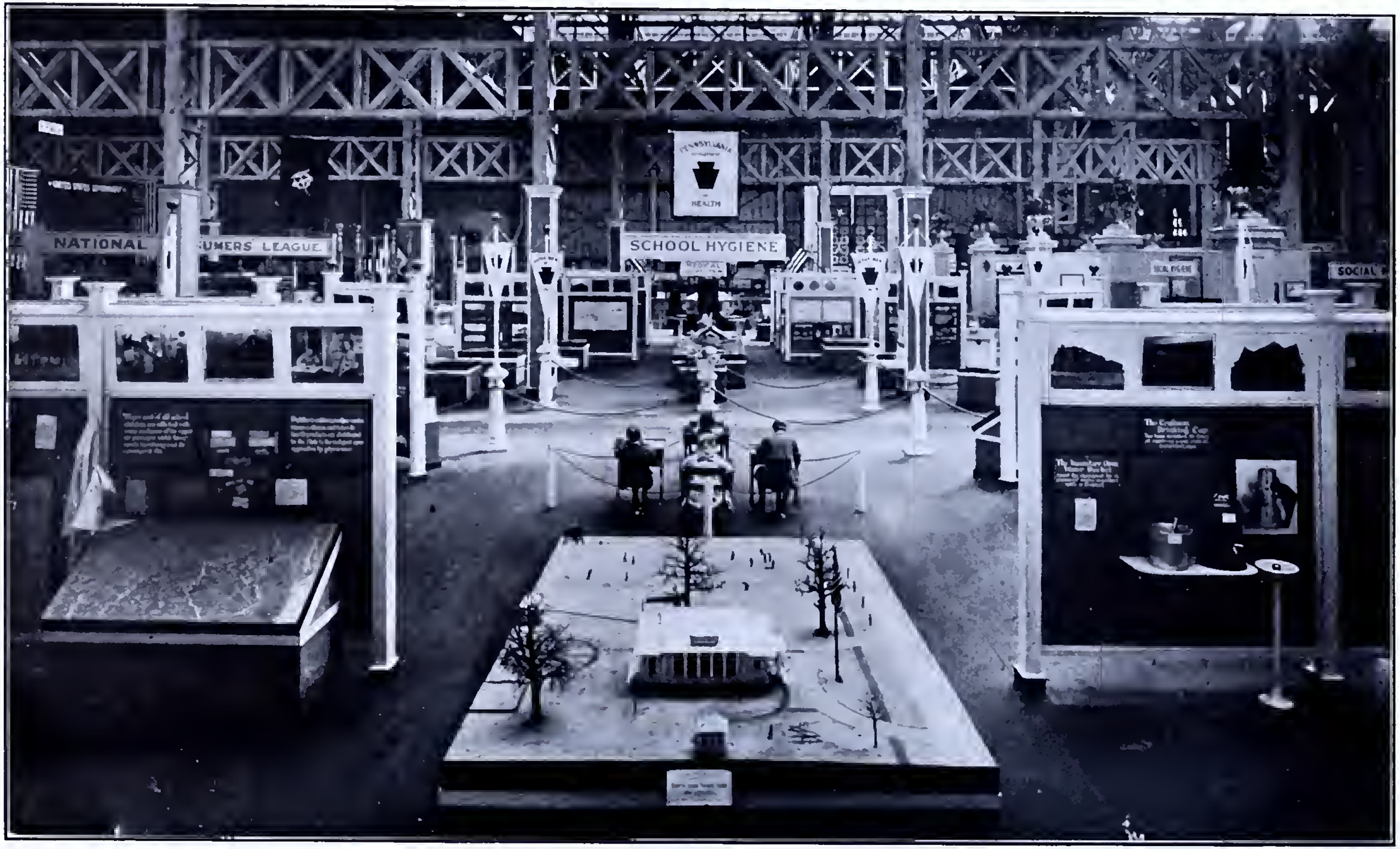
A photograph depicted the Medical Inspector testing the school child's hearing by the whispering test, and a legend close by informed the visitor that over three per cent. of all school children have some degree of defective hearing.

A public school dental clinic was pictured in a large photograph and the visitor learned from another legend that almost fifty-two per cent. of all school children have defects of the teeth which interfere more or less with speech and the proper mastication and digestion of food.

Further along in this exhibit were eighteen sets of mouth-casts to show irregularities in the formation of the dental arches due to lack of attention given the temporary teeth. In a series of mounted specimens were seen:—the eruption of the temporary and the permanent teeth; the twenty temporary teeth; the thirty-two permanent teeth; the palate and dental arches of a child and of an adult; a dissection showing the blood and nerve supply to the teeth; the mandible or lower jaw of a child, of an adult, and of an aged person; and the toothless jaws of old age.

Turning again to the medical inspection service, one saw in three different photographs an Inspector taking a throat culture; a school nurse taking physical measurements; and instruction being given to the mother as to the preservation of the school child's health.

Parents or guardians of children are notified directly as to the existence of physical defects in the child, and if the family circum-



Model of a Modern Rural School, and Figures Showing Postural Defects Caused by Unsuitable Desks and Chairs.

stances are such as to require it, free dispensary service is at their disposal.

Models of the head and neck, showing them in section as they appear normally, and when the upper air passages are occluded by adenoids and enlarged tonsils, and with a diphtheritic membrane on the tonsils and posterior nares, made up an interesting part of the exhibit. The legend connected with this portion of the exhibit set forth the fact that thirty-five per cent. of all these school children are affected with some occlusion of the upper air passage which provokes mouth-breathing and its consequent ills, such as frequent attacks of tonsillitis, nasal and pharyngeal catarrh, and lung affections.

Improper or under-feeding of school children is a prolific source of retardation and physical deficiency, and for that reason transparencies showing children buying and eating lunches for three cents or a penny, or even obtaining free school lunches provided for undernourished children, were made a part of this school health exhibit.

The old time schoolhouses, of logs, brick, or stone, with their bad lighting, bad heating, and bad ventilation were contrasted with the modern consolidated rural school buildings in sixteen large photographs. The evolution of such modern schools with the passing of the old type of isolated buildings and crude equipment marks an epoch in school hygiene.

Some of the characteristics of a thoroughly modern rural school were shown in a large model of such a school properly supplied with playgrounds and well screened outhouses. This model was carefully prepared to indicate how the lighting and heating should be carried on in a satisfactory fashion. Near at hand was a group of four lifesize wax figures of school children which attracted much attention because they illustrated how proper and improper postures in the school room are determined by the desks and chairs which are provided.

Photographs and transparencies of modern school buildings with their modern appointments, such as auditorium, library, and gymnasium, as well as of the modern playground with its equipment of swings, see-saws, maypoles, etc., and the pupils in the act of enjoying them, keenly interested many visitors. Open-air sports, gymnastics, and systematic recreation are newly recognized adjuncts of education. Instruction in domestic science is becoming a very important branch in the school curriculum and was illustrated by a large photograph of a number of little girls learning to make bread.

Six photographs illustrated vividly the proven value of open-air schools in the mental as well as physical development of children who under ordinary conditions would have been deficient in both respects.

TRANSMISSIBLE DISEASES COMMON TO SCHOOL CHILDREN.

A series of seventeen transparencies in color, illustrating the eruption of smallpox in its various stages, and the protective value of vaccination was of great interest to all the visitors to the exhibit of the Department. These life-like transparencies served the purpose of impressing upon the mind of the beholder the fact that in times of smallpox epidemics the children of school age who are required by law to be vaccinated are practically immune to this disease.

Twenty realistic transparencies in color illustrated beautifully the eruptive fevers and transmissible affections common to school children, such as scarlet fever, measles, chicken pox, impetigo contagiosa, diphtheria, conjunctivitis, scabies, ring worm, entamoeba buccalis (concerned very largely in a disease of the mouth, teeth, and gums), acne, trachoma and the trachoma bodies (the supposed etiological factor in the causation of this disease), pin worm, beg bug, head louse, body louse and their eggs.

THE PUBLIC HEALTH LABORATORY.

In one of the sections of the Department of Health reservation, separated from the Housing Division section on one side by wooden screens painted in white at the top of which were places for sixteen large transparencies electrically illuminated, was a laboratory, completely equipped with the necessary apparatus for making clinical examinations such as pertain to public health work.

Cultures of bacteria of various kinds and pathogenicity were exhibited in sealed culture tubes, and the different forms of micro-organisms found in the scrapings from beneath the finger nails, from the surface of the body, from hair, from paper-money, from floor sweepings, etc., were grown on large plates of culture media from day to day and the bacterial colonies exhibited to the visitors to the booth.

Ten large photographs reproducing some of the work being done in the laboratories of the Pennsylvania Department of Health located at 2000 Arch St., Philadelphia, were displayed on the walls of this laboratory booth. These views illustrated the method of the microscopical examination of slide preparations of pathological exudates; the counting of bacterial colonies on culture plates made from water suspected of causing disease; the sterilization of glass ware used in the laboratory tests; the method of examining sputum for tubercle bacilli; the growing of tubercle bacilli in flasks of culture medium in the incubator room built especially for that purpose; a clerk in the laboratory office numbering specimens; assistants packing syringes of tubercle bacilli products for shipment; the preparation of sections of tissue for histological examination; the shaking machine used for the purpose of finely emulsifying suspensions of bacteria, especially of tubercle bacilli to be used in the manufacture of the tubercle bacilli extract or "Fluid of Dixon."

A very interesting part of the laboratory exhibit was the setting forth by means of the specimen itself and the necessary apparatus each step in the preparation of specimens for the work in histopathology. The specimen was taken as it comes to the laboratory, put through the various hardening solutions, oils and paraffines and warming oven, mounted on the block, and sectioned with the microtome. Then was shown the mounting of the section on the slide, drying in the oven and staining, after all of which procedures it was ready for microscopic examination.

Sputum and water examinations were also detailed step by step with apparatus actually used in the Department's laboratory, from the time and manner of receipt at the laboratory until the final examination, leading immediately to a report of its result, was ready to be made.

The preparation of Tubercle Bacilli Extract, or "Fluid of Dixon," was shown in each stage of its manufacture, from the growing of the tubercle bacilli in the flasks of culture medium to the finished product wrapped and ready for distribution and use.

A series of twenty-six transparencies in color made from photomicrographs illustrated various forms of disease-producing bacteria and the morbid processes produced by them. These transparencies showed the different forms of tubercle bacilli; tubercle in lung tissue; a walled-off tubercle in lung tissue; conglomerate tubercles in the lung; tubercles in the omentum; tuberculous ulcer of the ileum; and the tubercle bacilli in the sputum. Fly tracks on a gelatin plate showing vast numbers of bacterial colonies around each of them revealed in one of these transparencies what the filthy house fly carries on his legs. Typhoid bacilli with and without flagella were pictured on two other transparencies. Diphtheria bacilli; colon bacilli; pneumococci; tetanus bacilli; micrococcus pyogenes, the micro-organism causing boils, carbuncles, and other infections; micrococcus tetragenus, supposed to aid in cavity formation in pulmonary tuberculosis; foetal syphilis; and phagocytes, the scavengers of the blood, with ingested bacteria, were shown in this series.

The transparencies also included one of interstitial pancreatitis; one of myxo-sarcoma; atrophic cirrhosis or "gin drinker's liver;" focal necrosis of the liver after typhoid; cancer of the mammary gland; chronic glomerulo-nephritis after scarlatina.

The photograph of the original apparatus used by Dr. Samuel G. Dixon in the preparation of the Tubercle Bacilli Extract or "Fluid of Dixon" (Medical News, 1890), and publications concerning the same, drew a great deal of attention from visitors to the laboratory section. This "Fluid of Dixon" is used as one of the tubercle bacilli products in selected cases in the three State Sanatoria for tuberculosis and the State Tuberculosis Dispensaries.

From the Division of Distribution of Biological Products came packages of diphtheria antitoxin, products of the tubercle bacillus, and vaccines. A large colored chart set forth the mortality from diphtheria in patients treated with an antitoxin during the first four days after the onset of the disease as compared one day with the other, and the mortality when an antitoxin is not given. This chart was prepared to show more particularly the results obtained in 1911 when the systematic use of large doses (5,000 units) of an antitoxin began.

Another relief map of the State was shown wherein the location of the 676 stations for the distribution of biological products was graphically demonstrated. Antitoxins for diphtheria and tetanus. smallpox vaccine, and tubercle bacilli products are distributed by the State to the indigent without cost upon application by physicians.

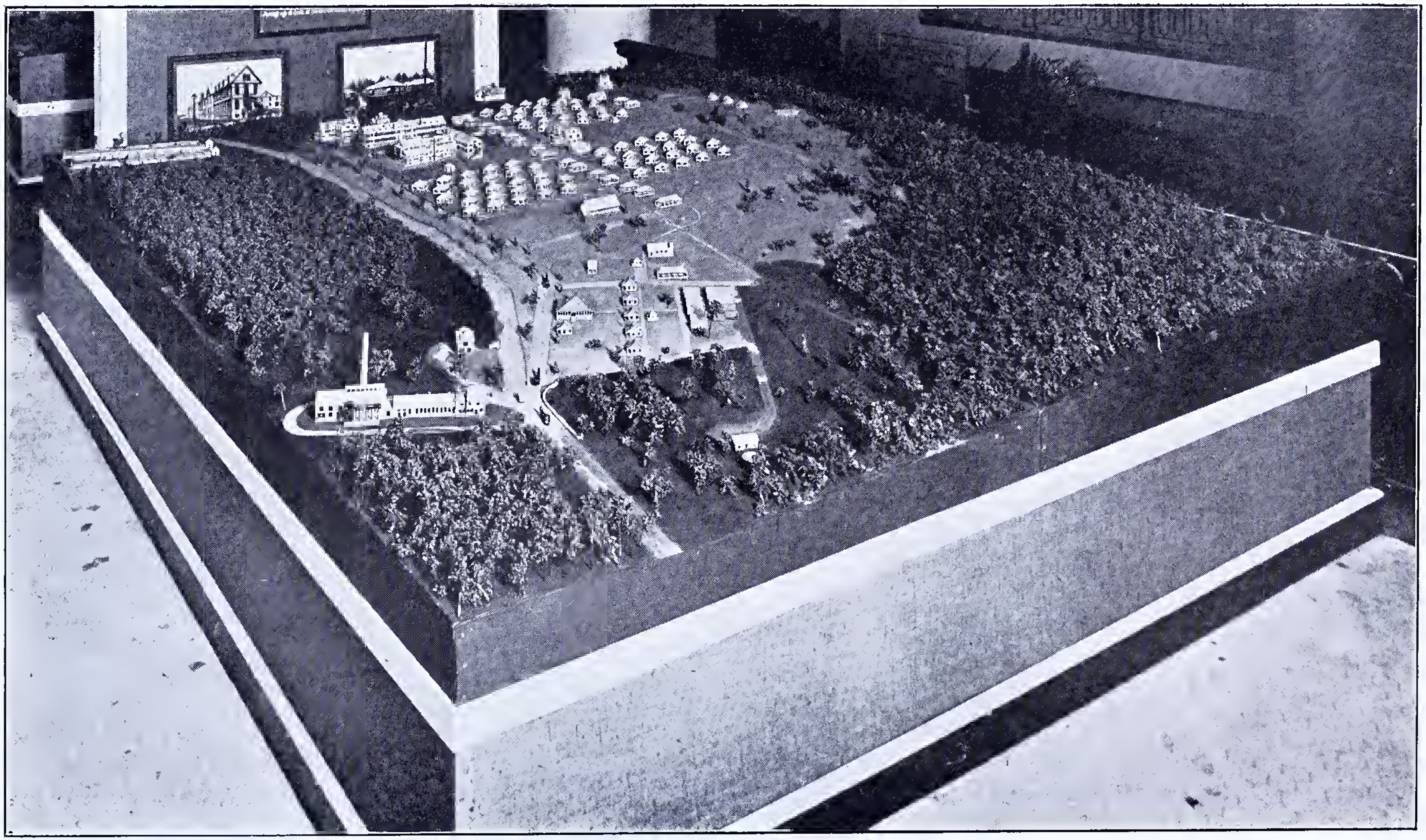
In this exhibit was a life-size model showing the dress and apparatus used by a departmental Health Officer for disinfection after communicable diseases, and also life-size models showing the possibilities of transmission of communicable disease through the towel and other material used in common by different individuals.

Tuberculosis and its Prevention.

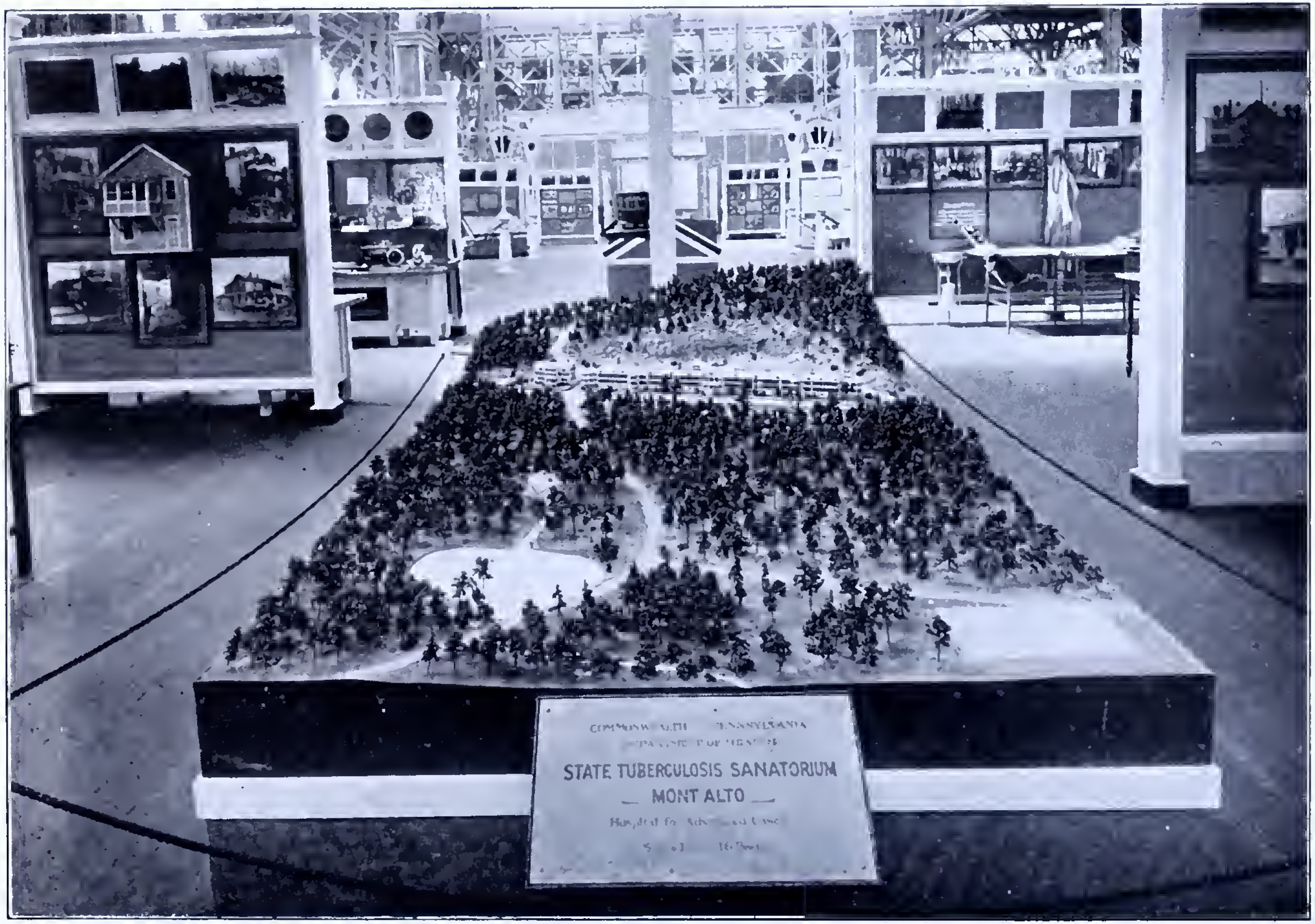
No part of the splendid exhibit attracted more attention than that which portrays by models, pictures, or transparencies the wonderful work of Pennsylvania for the care of the victims of the Great White Plague, and the work that it is doing to educate the people in the measures necessary for the prevention of this great scourge of humanity.

Beautiful models, most realistic, were shown of Pennsylvania's three large Sanatoria for the care of those afflicted with this terrible disease. Together the three institutions can accommodate approximately two thousand patients. These magnificent models brilliantly lighted with tiny electric lights with which they have been equipped became the focus of attraction of the Palace of Education. Types of cottages at the Camp used by the patients in the incipient stages of the disease, were reproduced, and every detail shown, even to the miniature bed, bed clothes, and wash-basin in each room.

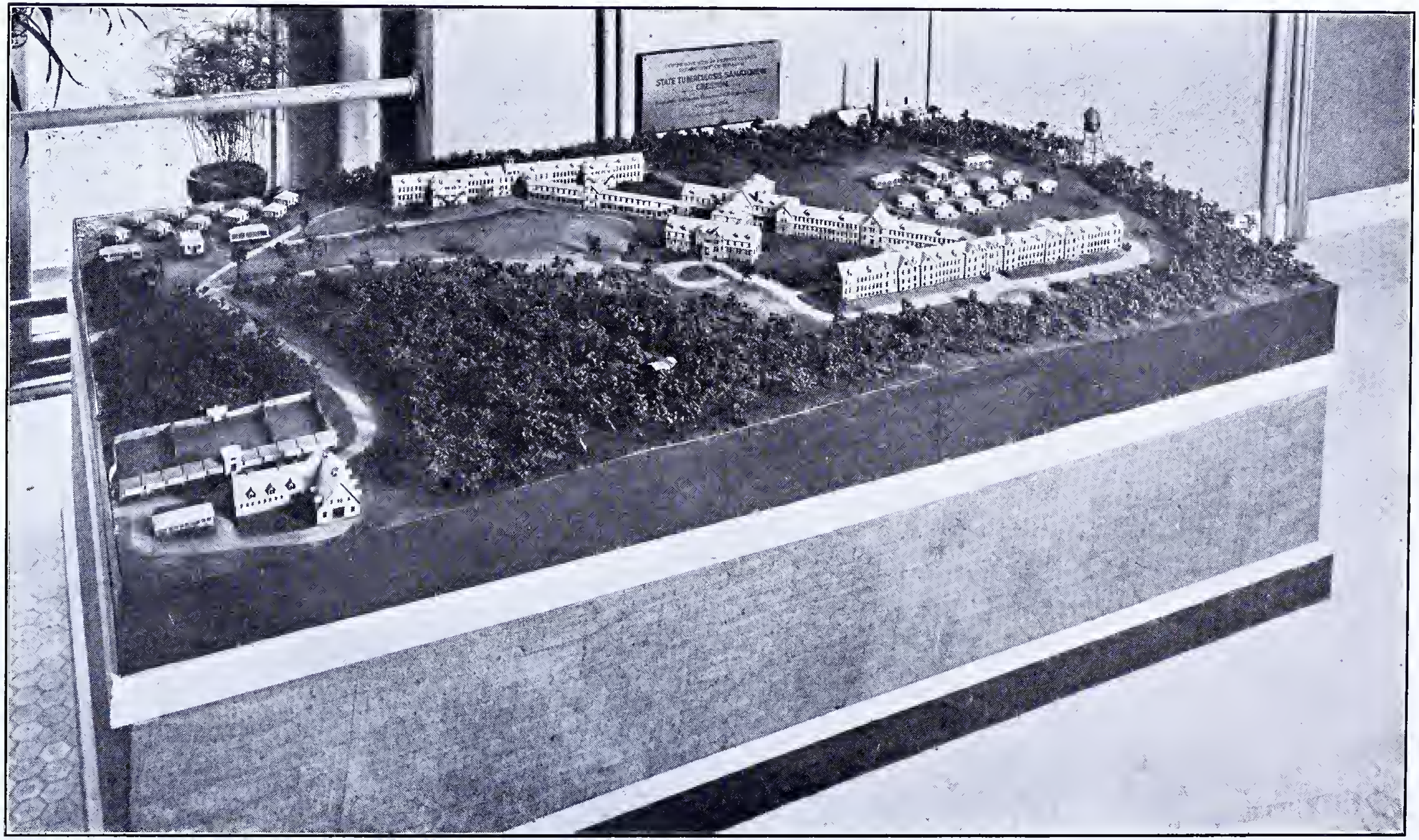
The tuberculosis work of the Pennsylvania Department of Health is composed of two distinct parts; first, that done in its three modern sanatoria for the treatment of the disease; and second, that done in its one hundred and fifteen dispensaries maintained in the different counties throughout the State. Viewing the exhibit in more or less detail the visitor's attention was first arrested by models of the Sana-



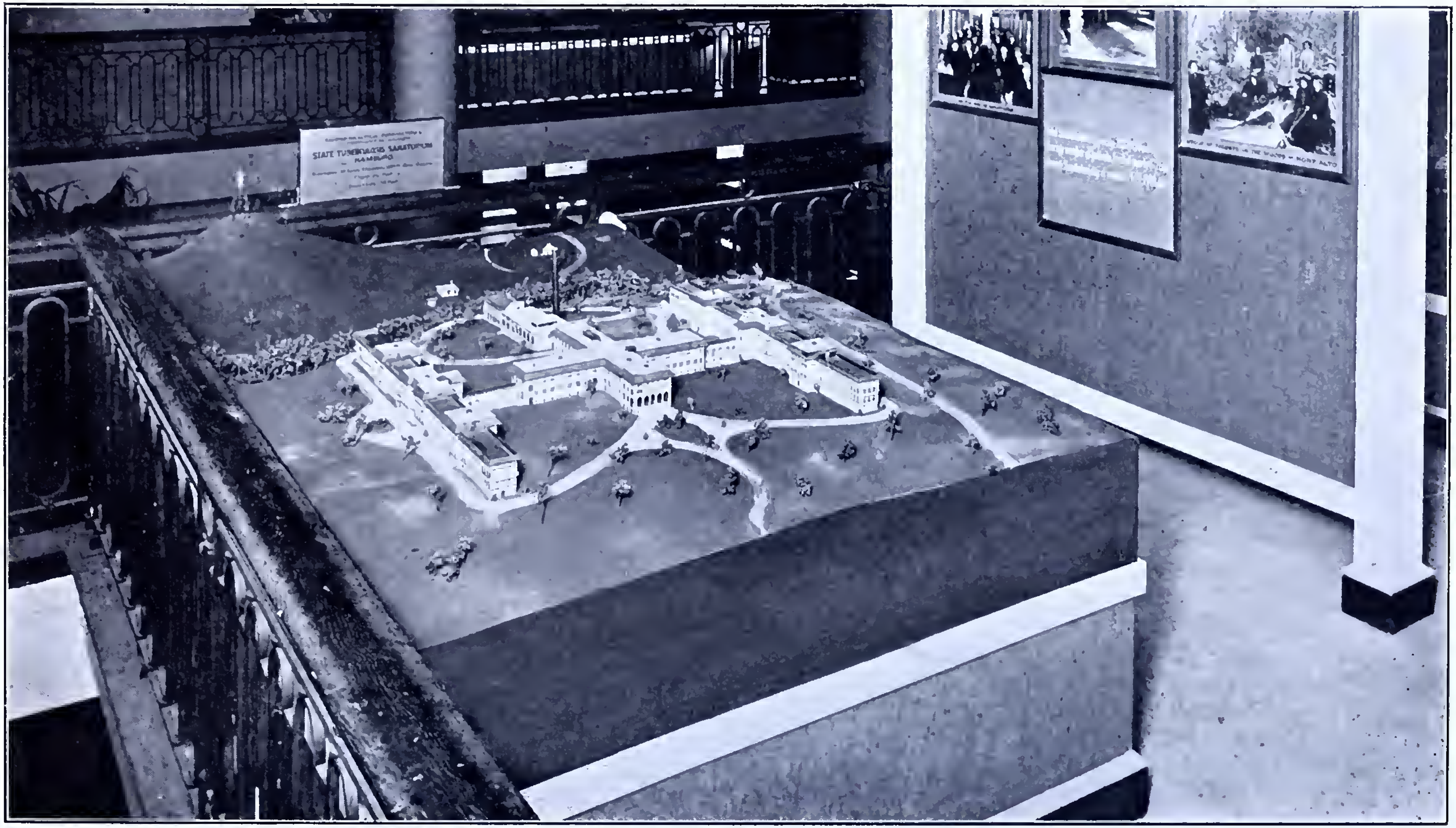
Model of the Pennsylvania State Sanatorium for Tuberculosis, No. 1, Mont Alto.


COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
STATE TUBERCULOSIS SANATORIUM
— MONT ALTO —
Hospital for Advanced Cases

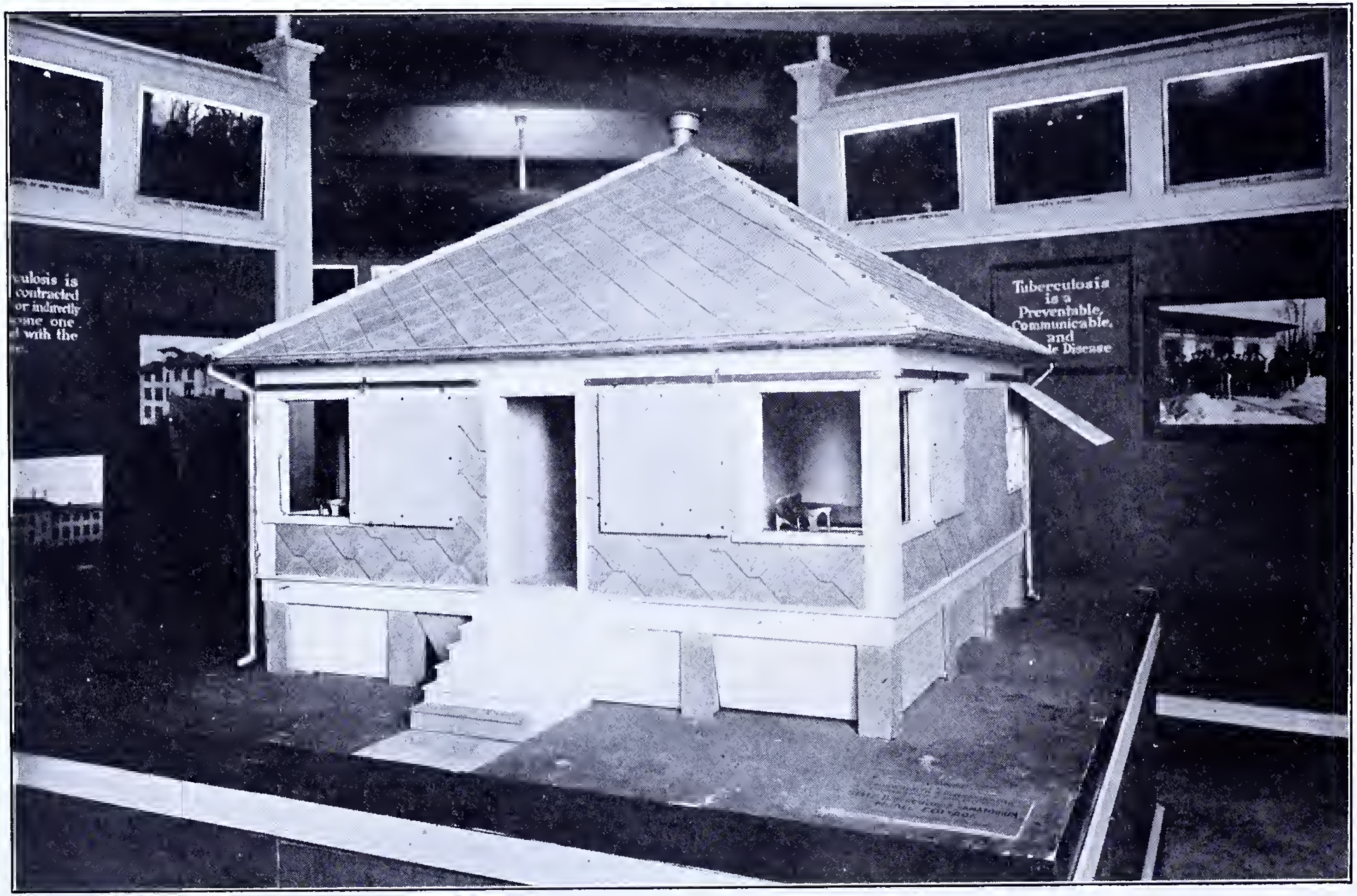
Model of the Hospital for Advanced Cases at Mont Alto.



Model of the Pennsylvania State Sanatorium for Tuberculosis, No. 2, Cresson.



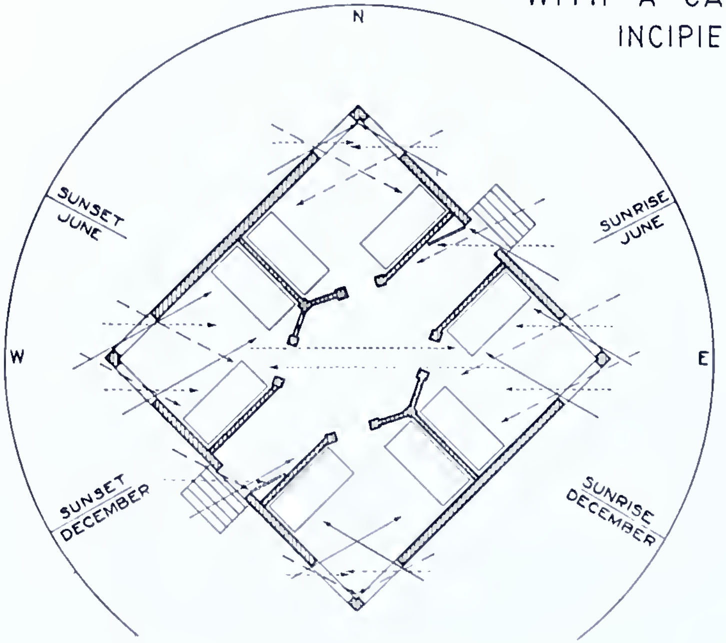
Model of the Pennsylvania State Sanatorium for Tuberculosis, No. 3, Hamburg.



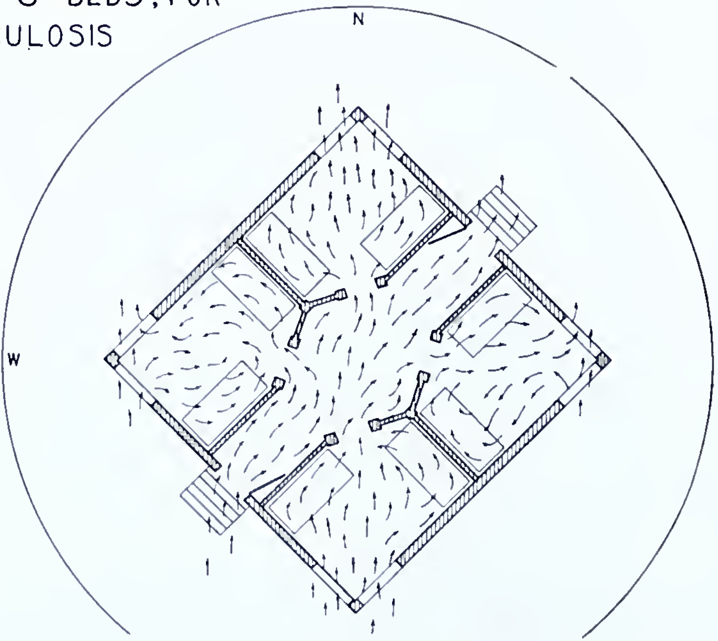
The Model Cottage.

PENNSYLVANIA DEPARTMENT OF HEALTH

FLOOR PLAN OF COTTAGE 27 FEET SQUARE
WITH A CAPACITY OF 8 BEDS, FOR
INCIPIENT TUBERCULOSIS



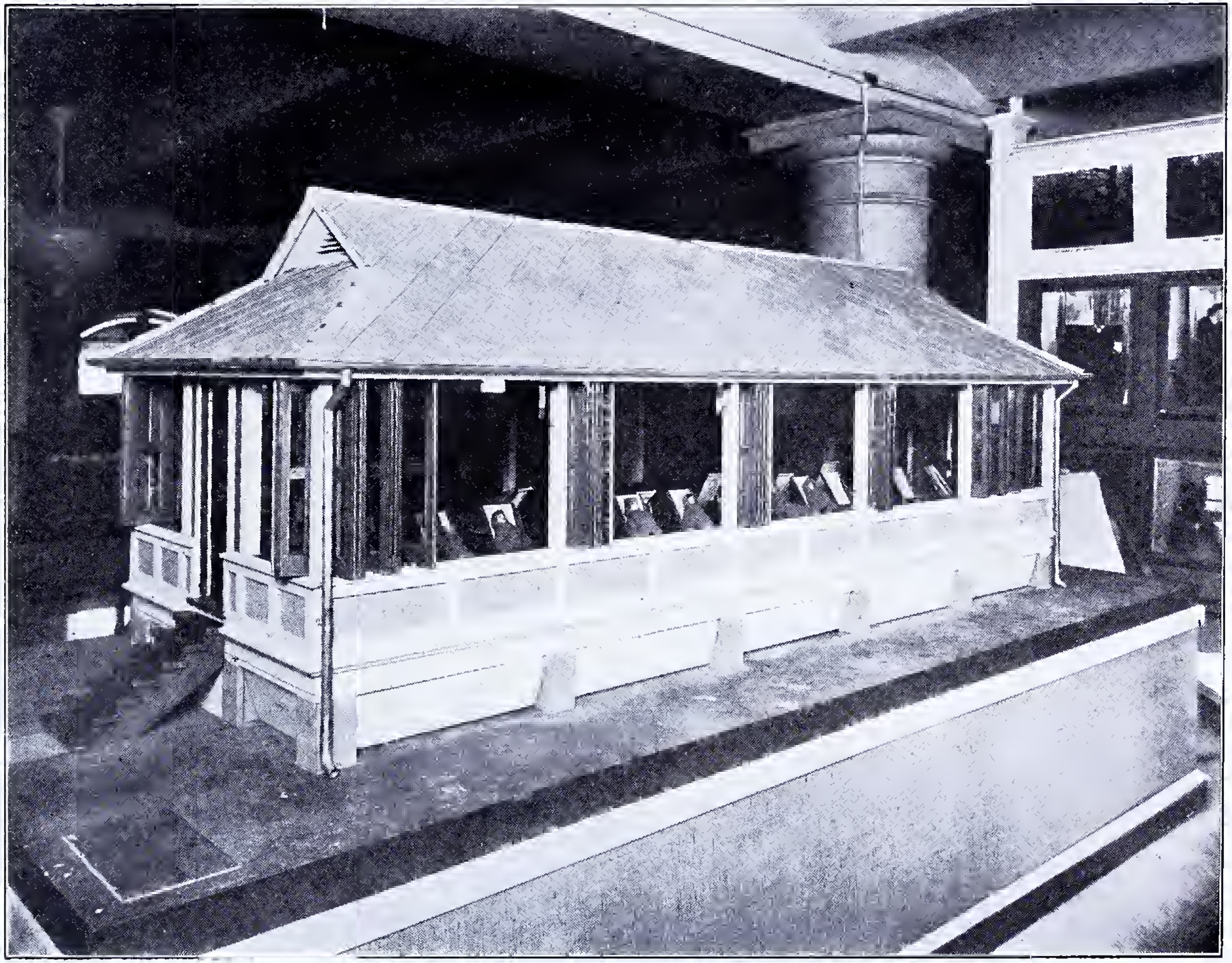
THIS SHOWS THE PATH OF THE
SUN'S RAYS THROUGH THE COTTAGE
AS THE SUN PASSES ALONG FROM
ITS NORTHERN TO ITS SOUTHERN QUARTER



THIS SHOWS THE MOVEMENT OF AIR THROUGH THE
COTTAGE WHEN COMING FROM THE SOUTH.
AN EQUALLY COMPREHENSIVE MOVEMENT TAKES PLACE
WHEN THE WIND COMES FROM ANY DIRECTION OF THE COMPASS.

THESE CONDITIONS ARE DUE TO THE PLAN OF THE COTTAGE AND TO THE FACT THAT
ITS CORNERS ARE DIRECTLY TO THE NORTH, SOUTH, EAST AND WEST.

Floor Plan of the Model Cottage.



The Open Air Pavilion at Mont Alto.

Dispensary nurses in 1914 paid
153,498 visits to the homes of
tuberculous and indigent p

Screen Displaying Various Exhibits Relating to the Treatment of Tuberculosis by the Department.

toria, beginning with that at Mont Alto. A large model, nine feet by twelve, represented the topography of this, the oldest of the three sanatoria—the initial attempt of the State to provide for the indigent sufferers from tuberculosis. It was opened in a small way for the reception of patients in 1907 and was completed as it exists today, with its total of one hundred and eight separate buildings, in 1912. This sanatorium is located in the midst of the Blue Ridge Mountains in the heart of the State Forestry Reservation of fifty-five thousand acres. Down to the first of July, 1915, a few more than fourteen thousand patients had been treated in this institution, more exactly, 14,043. The principal buildings are a central dining hall with tables to seat eight hundred persons; a children's building, accommodating one hundred and twenty-five; a dispensary building, containing the offices of the staff; a completely equipped operating room, adjoining which are rooms for the accommodation of twenty-five patients; nose and throat department; milk and egg station for "between-meal" feeding; administration building; and a home for the nurses. A central steam plant furnishes heat and light to all the buildings; water is supplied from the private plant of the Sanatorium; and plants for the disposal of sewage and the incineration of garbage are parts of the equipment.

Models were also shown of the hospital for advanced cases at Mont Alto, of the model cottages, with complete furnishings, of the tents, and of the Open Air Pavilion exhibiting patients wrapped in blankets sitting in rest-chairs taking the "cure."

Next was seen a large model of the Sanatorium at Cresson. This Sanatorium, the second to be built, is located on a reservation of four hundred and fifty acres at the highest point in the Allegheny Mountains. The land on which it stands was presented to the State for this particular purpose by Mr. Andrew Carnegie, who, impressed with its rugged beauty of forest, mountain, and valley, had contemplated building a house for himself at this place. The main buildings are of native sandstone with asbestos sheathing on the upper stories and asbestos shingles. The cottages are uniform in size and equipment with those at Mont Alto.

The State Sanatorium for Tuberculosis at Hamburg, the newest of our three Sanatoria, in fact only completed a couple of months before the exhibit was made, was also seen in a model of the same size as that of the Cresson Sanatorium. It is situated on a tract of somewhat more than three hundred acres along the southern edge of the Kittatinny, one of the Blue Ridge mountains, at an elevation of five hundred and sixty feet above sea level. The building is of stucco on hollow tile, with tiled roof gardens on the main wings as solaria. The unit is complete with heat, power, water supply, and sewage disposal and incinerating plants.

Life-like transparencies and photographs in great numbers demonstrating the life and activities among the patients indoors and out-of-doors, views of the different buildings of the sanatoria, interiorly and exteriorly, and of the rugged country thereabout fascinated the eye of the visitor for hours at a time. The views thus depicted brought to one's consciousness the realization of the marvelous work which is being done for the tuberculous poor in these three great sanatoria. At Mont Alto alone the average yearly number of patients treated has been 1750. This figure is obtained by including the patients of the years when this sanatorium was still in the stage of development and its capacity small. During the last three years the average number of patients treated has been something over three thousand. The average stay at this sanatorium has been nearly five months.

In prominent positions on the walls of the booth hung colored charts showing a comparison of death rates from the various forms of tuberculosis from 1906 to 1914, and indicating a reduction in mortality of from twenty to twenty-two per cent. during that period of nine years.

A most interesting portion of the tuberculosis exhibit of the Department proved to be the completely equipped State Tuberculosis Dispensary, containing the furniture and appliances used in treating patients, sanitary paper drinking cups, napkins, and pocket and other forms of sputum cups. There were 19,354 patients treated in 1914 in the one hundred and fifteen State Dispensaries, and up to July 1, 1915, over eighty-two thousand persons had been enrolled for this treatment.

By means of many photographs and transparencies the visitor saw the enrollment of the patient at the dispensary; the physical examination by the physician; the activity of the nose and throat clinic; and the work of the Dispensary nursing service, showing the restoration of a consumptive's filthy, ill ventilated, and poorly heated bed room in a little shanty in a back alley, by opening the windows, cleaning the floors and walls with soap and water, whitewashing the walls and ceiling, painting the washstand, dresser, etc., with white paint, buying a small heating stove for little money, all for the small outlay of not more than a five dollar bill.

In this connection it might be said that Dispensary nurses keep lists of houses which are desirable to live in and frequently have the families of the poor, sick or otherwise, moved from insanitary to sanitary quarters at the same rent or less.

When coal is needed by the destitute a kind-hearted Dispensary nurse rustles round and has a ton sent to this family by some charitable organization, if there be any, or if not, by some of the philanthropic rich of the community.

One picture showed a sick mother and four children with the nurse washing the baby; another, a Dispensary nurse giving instruction in the preparation of food; and among them all were shown the various kinds of social service work carried on by these Dispensary nurses. In 1914, the nurses paid 153,498 visits to the homes of tuberculous and indigent persons.

Photographs and transparencies of bad housing in the city and in the country showing the numbers of large families crowded into small, dark sleeping and living rooms, with little or no ventilation, some tuberculous and some still well, breathing each other's breath over and over again, made clear the insanitary way in which thousands of persons live. In direct contrast to these despicable conditions in housing were photographs of well-kept homes with the one or two-room built-on sleeping-porch, and the family fighting the tuberculosis infection by this method of living.

Several photographs presented the grave possibilities encountered by those using a public telephone booth after its use by a tuberculous individual; and the danger to her children of even a mother's tender care—if the mother be tuberculous—bestowed thoughtlessly upon those she loves.

TYPHOID FEVER AND SANITARY ENGINEERING.

The space allotted to the work of the Department in the prevention of typhoid fever was considerable. Large topographical models of the parts of the State in which widespread epidemics of typhoid fever have occurred, portrayed how at Nanticoke one unreported case of typhoid upon the bank of a stream eight miles above the intake of the public water supply of the town caused five hundred and twelve cases with a mortality of fifty; how in the Scranton epidemic feces discharged from trains crossing open bridges over the collecting basin of the city water supply caused eleven hundred and seventy-one cases of enteric fever with a hundred and twenty-three deaths; how an emergency water supply infected by a leaky flume, above the basin, carrying sewage from a hospital caused three hundred and seventeen cases of typhoid fever in Coatesville with thirty-four deaths; how the infection from a cesspool seeping through fissures in a limestone stratum was the cause of twenty-five cases of typhoid in Florin; and how in the Skippack epidemic one hundred and nine cases occurred extending over five miles through a semi-rural community as a result of one case of typhoid fever in the family of a dairyman supplying this extensive territory with milk.

Models of a filtration plant and of a sewage disposal plant were also exhibited. A most interesting operating model of the sewage disposal plant at Hamburg was seen. There, appeared the screen chamber, the Imhoff tanks, the sprinkling filters, the apparatus for adding the chemical disinfectant, the settling basin, and a filter of the rapid sand type; all these in full working order.

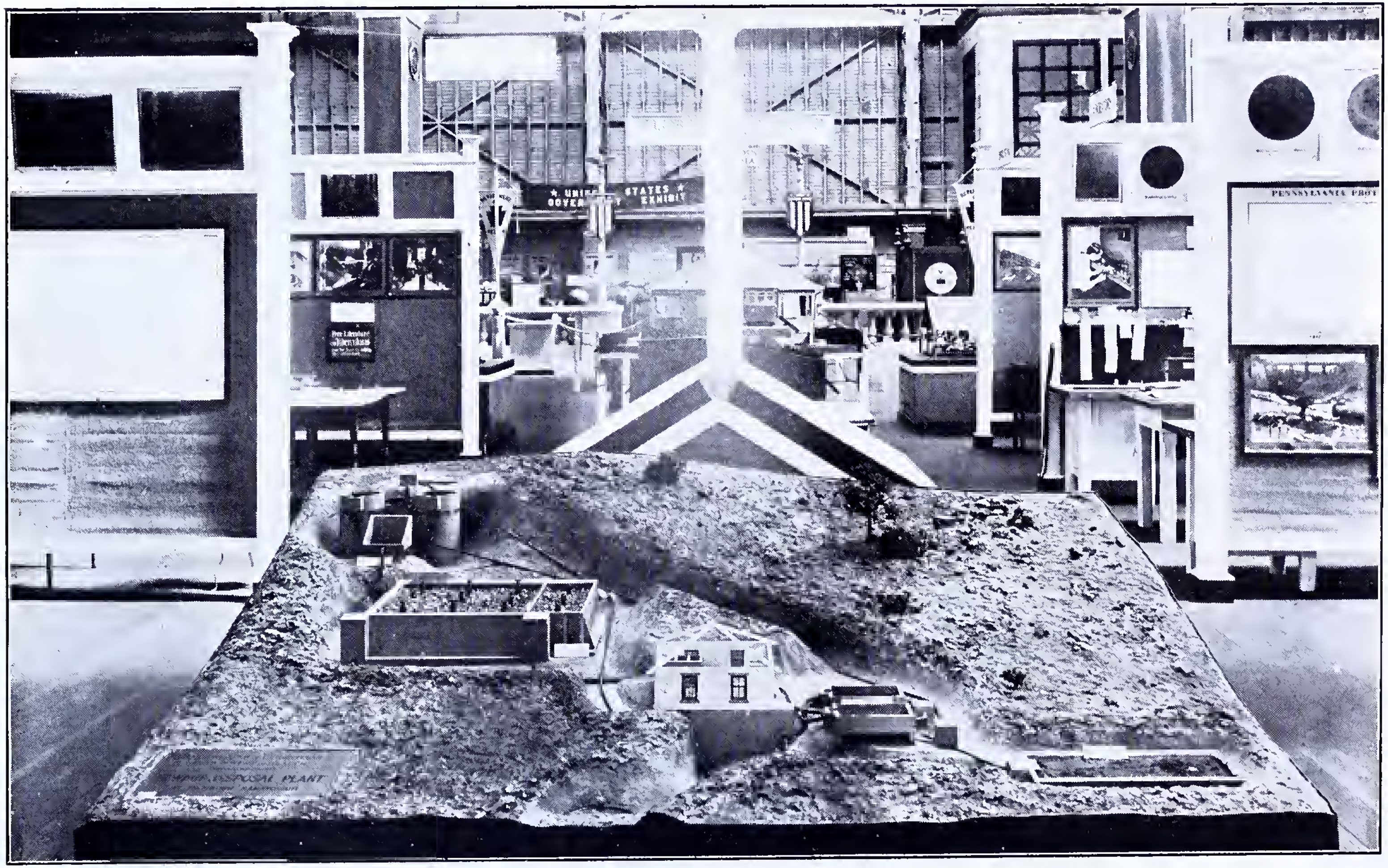
Various photographs and transparencies disclosed how streams from which a public water supply is drawn are polluted by dead animals, barn yard drainage, pig pens situated along the banks, privies overhanging the stream, etc. Models of a screened manure pit and a screened sanitary privy preventing the access of flies to the fecal material illustrated how fly-borne epidemics of typhoid fever may be prevented.

By colored charts attention was directed to the very striking decline in the prevalence and fatality of typhoid fever in Pennsylvania since the creation of the Department of Health. The morbidity from this disease, as expressed by the rate in a hundred thousand of the population, from 1906 to 1914, is estimated to have fallen off more than seventy-three per cent. The saving in cases of illness from this disease from 1906 to the middle of 1915 may be reckoned as over one hundred and twenty thousand. The deaths attributed to typhoid fever have also shown a great drop, such that the reduction in the rate amounts to over seventy-six per cent., and the aggregate saving of life to the middle of 1915 is more than twenty thousand.

In this description of the exhibit of the Department at the Panama-Pacific Exposition an attempt has been made to bring to the perception of the reader only the main points of interest in this magnificient demonstration of the administration of public health affairs in the sixth most densely populated state in the Union, second in population, second in wealth, but first in Sanitary Science.

It took hours for the visitor to inspect the exhibit even in a cursory fashion and it would take a large volume to describe in any just detail the great number of models, photographs, transparencies, and reproductions, so beautifully arranged as to convey the truths they represented in the most impressive manner.

The excellence of the display can be no better expressed than to say that the Commissioners of the Exposition awarded to the Exhibit of the Pennsylvania Department of Health, the Grand Prize, the highest honor within their gift; and bestowed upon the Commissioner of Health, Dr. Samuel G. Dixon, the Gold Medal, representing the most distinguished honor which could be conferred by the Exposition Managers upon an individual.



Operating Model of the Hamburg Sewage Disposal Plant, as shown at San Francisco.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.

Note:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers: 7, 9, 10, 33, 39, 49 are no longer available for distribution.